

Less Polluting Street Sweepers in the South Coast Air District

Public Workshop

**April 6, 2005 - El Monte
1:30 - 4:00 PM**



Why Reduce Diesel Emissions?

- Diesel Engines are Long Lived
- NO_x is an Ozone Precursor
- Diesel PM is a Toxic Air Contaminant

Health Impacts of Diesels in California

- Annual health impacts
 - 2,900 premature deaths
 - 3,600 hospital admissions
 - 240,000 asthma attacks/respiratory symptoms
 - 600,000 lost days of work
- By comparison
 - 3,700 deaths from car accidents
 - 2,000 homicides

What Vehicles Are We Talking About?



Diesel



LNG



Propane



CNG

Street Sweepers

- Heavy-duty vehicles with a gross vehicle weight of 14,000 pounds or more that are permitted to operate on public roads and used for the purpose of removing material from paved surfaces.

Proposed Applicability

- Municipalities with 15 or more total vehicles that own or operate street sweepers within the South Coast Air District
- Private companies that contract with municipalities for street sweeping services in the South Coast Air District

SCAQMD Rule 1186.1

- Adopted 2000
- Applies to Fleets With 15 or More Vehicles
- Alt Fuel Purchase/Lease Requirement Beginning 2001

Why is the ARB considering the Less Polluting Street Sweeper Regulation?

- U.S. Supreme Court Ruled That Certain Aspects of Rule 1186.1 Are Preempted by Federal Authority
- ARB and U.S. EPA Determined Rule 1186.1 Not Appropriate for Waiver Without State Adoption
- ARB Agreed to Evaluate Four Fleet Rules, Including Rule 1186.1 Affecting Street Sweepers

What Are the Regulatory Concepts for Street Sweepers?

- Best Engine Selection/Technology - requires purchase or lease of engines meeting lower NOx and PM Levels
 - Certified Alternative fueled engines
 - Certified Diesel engines
 - Certified Diesel engines with verified retrofits

BEST for Main Engines

2005-2006 Model Year Engines:

- Beginning on adoption
- Certified or Retrofit to First Optional Engine Standard
 - NO_x Plus NMHC Standard of 1.8 g/bhp-hr or Lower
 - PM Standard of 0.03 g/bhp-hr or Lower

BEST for Main Engines

2007 and Later Model Year Engines:

- Certified or Retrofit to the 2007 Engine Standards
 - NOx Declared FEL Between 0.2 to 0.9 g/bhp-hr - Comments requested on FEL level
 - PM Standard is 0.01 g/bhp-hr

BEST for Main Engines

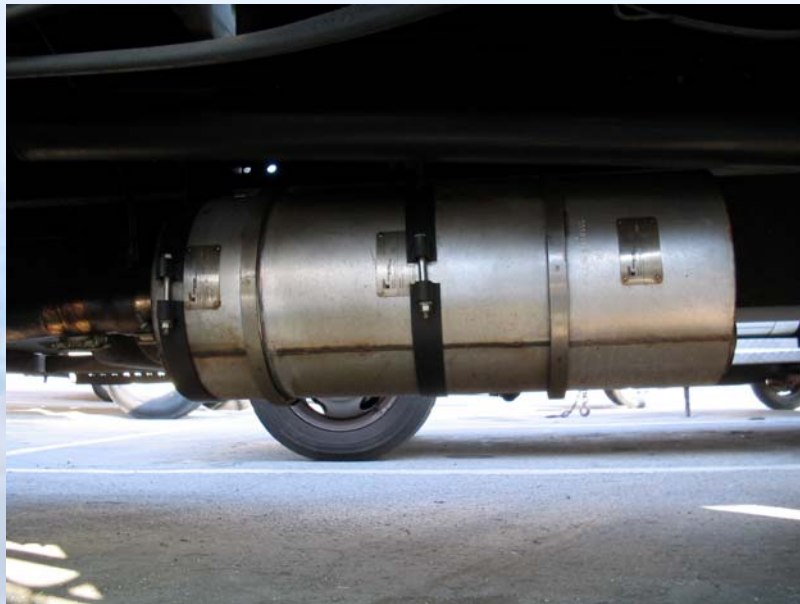
2010+ Model Year Engine:

- Certified to the 2010+ Standards
 - NOx Standard is 0.2 g/bhp-hr
 - PM Standard is 0.01 g/bhp-hr

BEST for Auxiliary Engines

- Beginning on adoption
- Certification Values or Retrofitted Values Cannot Exceed
 - 1.0 g/bhp-hr for NO_x plus HC (NMHC)
 - 0.01 g/bhp-hr for PM.

Example: Passive Diesel Particulate Filter w/Lean NOx Catalyst



- NOx Reduced 2.4 to 1.8 g/bhp-hr
- PM Reduced 0.10 to 0.01 g/bhp-hr
- Reduces HC & CO
- Engine must meet filter manufacturer's exhaust temperature criteria for use

Verified Retrofits

Verified Retrofits for diesel engines are posted on the web at:

www.arb.ca.gov/diesel/verdev/verdev.htm

Proposed Special Circumstances

- Diesel Emission Control Strategy Failure
- Discontinuation of Fuel DECS
- Participation in Experiment/Demonstration

Proposed Exemptions

- Exemption Application Must Be Approved by ARB
- No Compliant Engine and Chassis Configuration or Verified Diesel Emission Control Strategy is Commercially Available
- Purchase Contract is Signed Prior to the Adoption of this Rule

Proposed Recordkeeping And Reporting

- Some Records Kept at Vehicle Location
- Some Records Kept in the Vehicle
- Additional recordkeeping or reporting requirements may apply if funding programs are involved

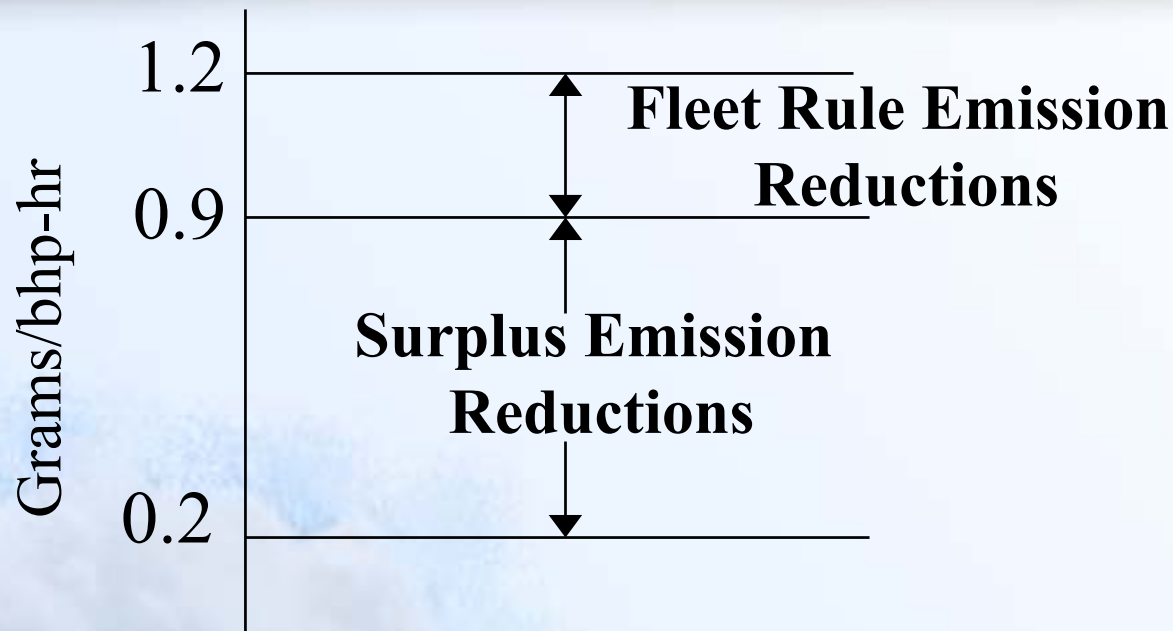
Preliminary Emissions Benefits Estimate

- Proposed rule:
 - 113-130 cumulative tons NOx by 2012, depending on NOx limit
 - 8.8 cumulative tons PM by 2012
- SCAQMD Rule 1186.1
 - 101 cumulative tons NOx by 2012
 - 8.4 cumulative tons PM by 2012

Preliminary Compliance Cost Estimate

- Alternative Fuel Engine
 - Approximately \$35-80,000 Additional
 - Facility Upgrades
 - Fueling Availability
- Diesel Engine With DECS
 - Cost of Retrofit ~\$8,500 to \$19,000
 - Additional Maintenance Costs

Incentive Funding Example



- **Example:** If BEST Limit Set at 0.9 g/bhp-hr and Vehicle Emits at 0.2 g/bhp-hr, Surplus Emission Reductions Would Be 0.7 g/bhp-hr.

Public Process

- Public Workshop 04/06/05
- Comments Requested by 04/15/05
- Staff Report Released by 06/03/05
- Board Hearing 07/21-22/05

COMMENTS REQUESTED

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